

DEMOGRAPHIC ASPECTS OF MILITARY STATISTICS

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This paper is intended to focus attention on military personnel statistics as a body of basic statistics important to the field of general demographic analysis. Demographic statisticians, and statisticians in general, have paid little attention to this material although data on military population enter into a number of problems which engage their attention. We shall concern ourselves here with a discussion of some of these problems, the sources of statistics on the military population, the basic reporting systems, and the comparability and consistency of the data.

The military population has represented a numerically significant segment of the population of the United States continuously since 1941, as a result of World War II and the ensuing period of sustained "cold war". It has exceeded one million for all the years since 1941, rising to over 12 million at the climax of World War II; as of July 1958 it numbered 2.6 million. Gross changes in the group are impressive; even in the year 1957-58, when the armed forces declined by about 200,000, there was a turnover involving about 1,200,000 men.

The inclusion or exclusion of armed forces distinguishes the three principal types of population figures for the United States published by the Census Bureau. These are (1) the civilian population, (2) the total population resident in the United States (including armed forces in the United States), and (3) the total population including armed forces overseas. Since the first and second types of estimates are obtained by subtraction from the third type, it is necessary to have figures on the total number of United States military personnel and the number inside or outside United States to prepare these types of estimates. One problem, here, arises from the fact that the armed forces of the United States include persons who were inducted or who enlisted from outside continental United States. An accurate separation of the armed forces into "inside" and "outside", consistent with the census definition of residence inside and outside continental United States, presents its special difficulties.

Of the three types of population figures noted for the United States above, only the first two are ordinarily considered appropriate for states and local areas. Thus, the Census Bureau publishes only the total resident population and the civilian population for states, and excludes overseas armed forces from its official counts and postcensal estimates for states. Similarly, the Census Bureau publishes only total resident population for its projections of State population. Yet, contrariwise, in their censuses the states of Massachusetts

and Kansas include absent military persons with their families living in the State and exclude military persons stationed in the State. In general, this definition of population is demographically unsound as well as impractical. The military man's previous household may have been relocated or terminated as a result of his induction or enlistment; he may marry while in military service or on leaving it and establish his own home; for other reasons he may not return to his preservice home. To assign military persons back home would be unrealistic, therefore; it would also be operationally very difficult to enumerate accurately "at home" so large a population "away from home". Furthermore, for most of the purposes for which population figures are used, they should represent the population which public and private facilities in the area must serve; that is, the resident population. On the other hand, for some analytical purposes and particularly as a stage in making certain population estimates, it is useful to consider a hypothetical population representing the sum of the civilian population and persons away in the armed forces. For example, this would seem an appropriate type of figure for certain family studies, for measuring the potential voting population, or as an intermediate element, for deriving projections of local population.

Derivation of census counts and post-censal estimates of the total and civilian population of States and local areas requires data on the number of military persons "resident" in each State or area. Because of the mobile character and special living arrangements of the armed forces, the collection and compilation of data relating to them, particularly data for small areas, present special problems.

If state and local population estimates are made by the component method or if population changes are to be analyzed in terms of components, another type of military statistics is needed—net movement of civilians to the military population. The component method involves the estimation of population by combining separate allowances for births, deaths, net civilian migration, net movement of civilians to the military population, and net change in the number of military persons stationed in the area, with the figure from the last census. The net movement component represents the balance of the number entering military service from the civilian population and the number leaving military service for civilian life. There are two basic sources of figures on "net movement"—data on the "preservice residence" of the armed forces, by states, from the Department of

Defense and data on so-called "net credits", by states, from the Selective Service System. Theoretically, to represent "net movement", the change in these series over the estimate period must first be derived and then increased by the small number of deaths of persons from the area serving in the Armed Forces.

It is clearly important to take military changes into account in the analysis of population changes in states and local areas. An increase in the size of the military station, or more exactly a large net military migration into the area, may account for a substantial portion of the population growth in the area. Net military migration may be derived as the difference between net total migration (the difference between total change and natural increase) and net civilian migration (a by-product of the component estimating procedure). For the Middle Atlantic States, net military migration between 1950 and 1957, for example, was as large a component of population change as net civilian migration; on the other hand, for the Pacific Division, net military migration was negligible in comparison with net civilian migration.

Let us now consider directly the various sources of military personnel statistics in terms of the separate reporting systems producing the data. There are seven separate reporting systems producing military statistics, of which the five branches of military service considered together (Navy, Marine Corps, Army, and Air Force in the Department of Defense and the Coast Guard in the Treasury Department) are the most important. The other principal sources are the Selective Service System and the decennial censuses. Taken in combination, these provide a wide variety of military statistics on a regular basis.

Most of the data useful for demographic analysis from the Defense Department and the Selective Service System come as by-products of the administrative needs of these agencies; very little information is made available directly for so esoteric a purpose as demographic analysis. Two main procedures are used by the military branches to produce their "demographic" data; one is the use of sample surveys taken in the field at various time intervals and the other is the use of the regular central reporting system or central file in which 100 percent of all personnel are covered. The Department of the Army and the Department of the Air Force obtain data on the number and geographic distribution of their military personnel—that is, the number assigned to and located at specific duty locations—from a complete accounting based on "morning reports". They use sample surveys

to obtain information on such characteristics as age, marital status, educational status, etc.

The Department of the Navy and the Coast Guard develop most of their information from personnel records kept in the central file in Washington and do not resort to the use of sampling procedures. The compilation of Marine Corps statistics is primarily the responsibility of the Marine Corps itself, although the Marine Corps is administratively part of the Navy Department.

The Army conducts its survey four times a year. This survey is designed to give a five percent return of all Army personnel, the sample of individuals to be included being determined by a random process on the basis of the last two digits of their military service numbers. Questionnaires are sent to all military installations (inside and outside continental United States) with appropriate instructions to the personnel clerk at each installation. The latter generally has overall responsibility for the completion of the survey at each location. The exact procedure has changed over time. At one time, personnel clerks used to fill out the schedules from individual personnel records and transmit them to Washington. Now, however, the serviceman is required to fill out most of the items personally, and, before transmitting the schedules, the personnel clerk checks the serviceman's answers against his personnel folder and reconciles any differences. Although the survey is taken every three months, there is no fixed time schedule for the individual items and their frequency varies in accordance with the needs of the Department. Some demographic items are included frequently. An item like State of pre-service residence, on the other hand, has relatively low priority and is not likely to be included more than once a year.

The sample survey of the Air Force is similar to that of the Army although now it is conducted only three times a year. It, too, is designed for a five percent sample return. The demographic items included are also similar to those in the Army survey, e.g., age, marital status, educational status, etc.

It should be pointed out that no attempt is made to achieve uniformity in the wording of questions common to both the Army and Air Force surveys. In some items, such as age, variations in the wording hardly affect the consistency of the results since the alternative questions call for essentially the same thing (e.g., age last birthday). In an item such as state of pre-service residence, on the other hand, variations such as "legal residence", "voting residence", or "state of induction"

tend to reduce the comparability of the results to some extent. Unfortunately, such differences in wording exist not only between the Army and the Air Force surveys taken at a single date, but may also appear in surveys taken by the same sources from time to time.

To what extent the differences between the branches in procedure of data collection and in the wording of questions affect the comparability of the data is not known. For the most part, the data from the various branches are believed to be additive and the data from each branch are believed to be consistent over time. In combination, these sources present the data needed to secure a picture of the current size, distribution, and composition of our armed forces.

There is within the office of the Secretary of Defense a small statistical staff, which in a very limited way serves as a central source of military personnel statistics and which combines selected types of statistics from the individual military departments. Its principal function, however, is to provide the Secretary of Defense and his staff with the statistics necessary for the overall operations of the Department of Defense. Its functions do not include the role of central statistical office for military statistics. Thus, the Bureau of the Census relies on the individual sources for most of the required personnel statistics. It may be possible in some instances to secure military station data for specific local areas from the local military commander (or local military public information officer). The information available locally may enable one to distinguish between those living on post and those living off post or may even indicate the exact distribution by area of residence—the type of information needed to tie in with the 1950 Census materials.

In addition to the five branches of the military service, there are two other important sources of military statistics—the Selective Service System and the decennial censuses of the United States Bureau of the Census. Of minor importance as a source is the Census Bureau's Current Population Survey which affords limited data on military personnel in continental United States living off post or with their families on post.

The Selective Service System is, of course, the machinery through which young men are drafted into the armed forces. Its records contain much information about registrants and draftees, and provide a guide to the available military manpower pool for the Department of Defense. In addition to maintaining the regular registration and selective service records, the system receives information from the armed forces on those who enter the

military outside Selective Service channels. Furthermore, regardless of whether an individual was inducted through Selective Service or enlisted, a record (home address report) is sent to the local Selective Service Board for each individual separated from service. Thus, Selective Service may serve as a source of information on entries into, and separations from, military service; estimates of changes in the overall strength of the armed forces; and figures on the number of persons serving in the armed forces from each state, referred to as "net credits". The latter can be used to develop readily estimates of the net movement of the civilian population into the Armed Forces from each state over a period of time, previously noted as an important component of population change.

These military data from Selective Service sources may be compared with the data obtained from the Department of Defense. With respect to overall strength, recent Selective Service figures indicate an armed forces level on July 1, 1958 some 300,000 lower than the "actual" mid-1958 figure (approximately 2.6 million). The difference between the two totals varies from period to period. The differences appear to be greater during periods of rapid build-up in our armed forces; for example, in July 1951 the Selective Service figure on total strength was about $\frac{1}{2}$ million lower than the 3.3 million reported by the Department of Defense. Apparently, then, there is some "catching-up" during periods of relative stability of the armed forces.

Both for the number serving from each state as of any current date and for the estimated net movement into the armed forces from each state for any postcensal period, there are substantial differences between the Selective Service series and the Defense Department series. Even when the Selective Service data are adjusted to the total U. S. strength figures from the Department of Defense, the net movement estimates for 23 states differ by 20 percent or more in a comparison for 1950-56. Although the Defense Department figures may be taken as the standard here for demographic purposes, they too are subject to error arising primarily from misassignment with respect to residence and from sampling variability. Even though the percentage error in the net movement component may be large, however computed, the resulting error in the population estimates is relatively small, and in most instances substantially smaller than the error involved if this component is ignored completely, as is sometimes done.

For local areas, such as counties and cities, the Selective Service System represents the only source of an actual tabulation of persons currently away in the armed forces, although estimates are possible on the basis of

the Defense Department data. For counties, or cities which have their own selective service boards, these figures may be readily available; otherwise, special tabulations from basic records are necessary.

For its state population estimates the Bureau of the Census employs the Defense Department's preservice residence data, and for its county estimates preservice residence is approximated by taking that proportion of the state total represented by males of military age in the county in 1950. Selective Service data are not used.

As mentioned earlier, military persons living in continental United States are counted in the decennial censuses of population. In addition, in 1950 military persons living abroad were also separately counted. In the 1950 Census, military persons living in barracks on military posts were covered by use of special census forms and included in the population count for the area in which their camp or post was located. These forms were distributed to all such persons through the personnel officer (or his designate) at each camp or post, filled out by the individual, and returned to the Census Bureau through the personnel officer. Military persons living off post or in regular type quarters on post were enumerated on regular schedules by regular enumerators at their place of residence. A similar procedure was carried out in counting the Armed Forces abroad.

The Navy presents a special problem because many seamen are "resident" on ships afloat or in port. According to the census rule, persons assigned to ships in port were to be enumerated at the port and, hence, as part of the port city's population. The chance assignment of ships to ports at the time of the census means that there is some instability in the count of population of cities having ports in which military vessels are berthed.

The 1950 Census reports do not generally show military population directly, but such data can be obtained from the labor force tables as differences between the total and the civilian labor force. The 1950 Census provides information on the size and geographic distribution of the Armed Forces within continental United States, by states, counties, urban places, and urbanized areas, and on the size of the Armed Forces outside U.S. The census also provides information on the age-sex distribution of the military population inside the United States, outside the United States, and in each state, and on a wide variety of other demographic and social characteristics.

The Census figure for the total military

population (as best as can be derived) was about 10 percent lower than the Department of Defense figure for April 1, 1950, with the continental figure being about 7½ percent lower. There are some large differences between the two sets of figures by states, a few of which result from differences in basis of allocation by states (e.g., District of Columbia). For its national and state population estimates for both 1950 and later dates, the Bureau of the Census employs the military station figures from the Department of Defense (with the exception of the District of Columbia, Virginia, and Maryland). In this way, comparability is achieved between the military figures for various estimate dates.

In the 1950 census, all military persons were theoretically enumerated as of the place where they lived, regardless of place of assignment or place of preservice residence. This was necessary if the principle of "usual place of residence" was to be followed and if counts of total population by residence were to be obtained for all census tabulation areas. For purposes of population analysis, this type of information is, in a sense, more satisfactory than the type of data provided by the Department of Defense which relate to the number of military persons assigned to, or on actual duty at, the various military posts in the area. In most cases, this number will agree approximately with the number of military persons living in the area. However, for many metropolitan areas, although the overall number of military persons stationed there may be about the same as the number residing there, the distribution within the area may be substantially different on the two bases. For the Washington, D. C., Metropolitan Area, for example, the percent of the military population assigned to the District of Columbia according to the military reports, differs substantially from the proportion residing there according to the census. State population figures may also be affected when military installations are located close to state boundaries or cross state lines. For its occasional work in estimating the population of metropolitan areas and counties, the Bureau of the Census generally employs the military figures from the census for April 1950 and the Department of Defense figures for post-censal dates, adjusted if necessary, for comparability with the census figure.

Census materials are, of course, available only once every 10 years; this limits sharply the usefulness of the census as a source of military statistics. The census can currently serve as a basis for determining the distribution of military personnel by residence within metropolitan areas and for adjusting Department of Defense figures for postcensal dates from a "place of work" to a "place of residence" basis. The plans for the 1960 Census with respect to the military population, so far as they have

been developed, are essentially similar to those for 1950. The "labor force" basis of securing the data suggests again a wide range of tabulation detail.

For lack of time, we have not considered here a number of facets of our general subject, such as, the use of Selective Service registration data and Department of Defense data to

evaluate the accuracy of census data; analysis of the demographic and economic characteristics of the military population per se in comparison with those for the general population; problems in the compilation and analysis of migration, marital status, household, labor force, education, and vital statistics data for the general population resulting from the fact of a large military population; and other topics.